An Improved Universal CMOS Current-Mode Analog Function Synthesizer

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Abstract
A CMOS integratable current-mode analog function synthesizer circuit is presented. The proposed circuit is based on approximating the required function using its sixth-order Taylor series expansion. These approximations can be implemented by adding the weighted output currents of a number of basic building blocks, built around a basic current squarer, and a constant current. The proposed circuit can simultaneously realize different mathematical functions. SPICE simulation results obtained from three nonlinear functions and demonstrating the circuit performance are included.